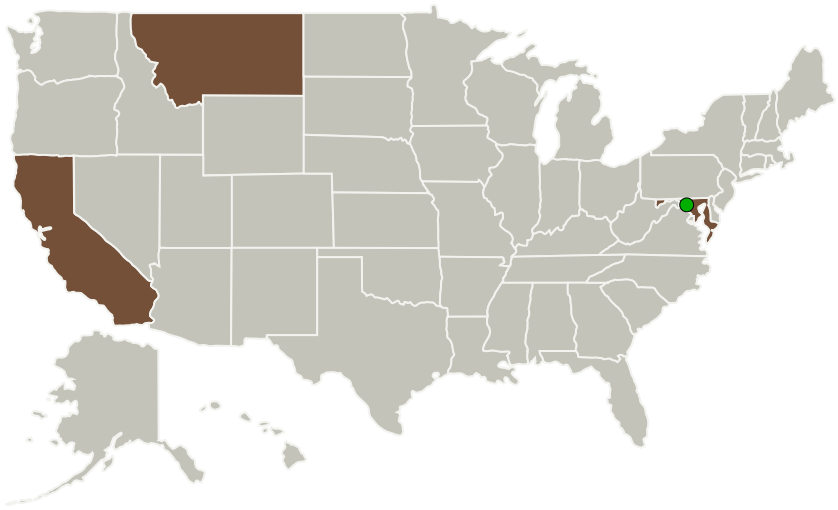
Structured nonlinear optical materials for LIDAR-based remote sensing, Phase II

Completed Technology Project (2011 - 2013)

Project Introduction

This NASA Phase II STTR effort will develop domain-engineered magnesium oxide doped lithium niobate (MgO:LN) for LIDAR-based remote sensing and communication applications. Use of bulk and waveguide-based domain engineered MgO:LN will allow the manufacture of highly efficient and compact, wavelength conversion modules for second-harmonic generation (SHG), sum-frequency generation (SFG), and parametric down conversion (PDC). In addition, these devices can be configured for broadband and high-gain optical parametric amplification (OPA) in the near-IR spectral region providing a path to the development of compact, single wavelength, spectroscopically useful laser sources as well as programmable optical comb (multi-wavelength) sources.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
ADVR, Inc.	Lead Organization	Industry	Bozeman, Montana
Goddard Space Flight Center(GSFC)	Supporting Organization	NASA Center	Greenbelt, Maryland
Stanford University(Stanford)	Supporting Organization	Academia	Stanford, California

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Primary U.S. Work Locations	
California	Maryland
Montana	

Project Transitions

July 2011: Project Start

June 2013: Closed out

Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/139565)*

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

ADVR, Inc.

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

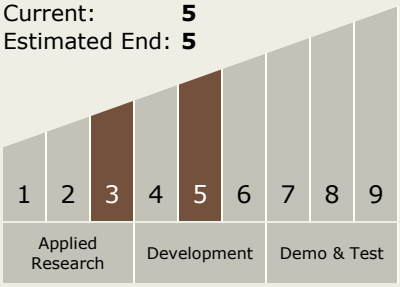
Carlos Torrez

Principal Investigator:

Elizabeth J Heckel

Technology Maturity (TRL)

Start: **3**
Current: **5**
Estimated End: **5**



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Technology Areas

Primary:

- TX08 Sensors and Instruments
  - TX08.1 Remote Sensing Instruments/Sensors
    - TX08.1.5 Lasers

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System